

MONDAY, JULY 7, 1919

Inventions of the War Will Mean More in Peace And Make World Richer

Dirigible Balloon Made a Success by "Sun Gas," an American Discovery, Observes Scientist-Author in New Book—Liberty Motors Now Used to Drive Giant Planes—Talking in Air Made Possible by Audion—Application of Camouflage Will Aid Mariners, Railroad Engineers and Motorists.

THREE American inventions—the submarine that carried the war into the sea, the airplane that brought it into the skies, and the machine gun that drove it into the ground—controlled the character of the fighting in the world conflict, points out A. Russell Bond in his book, "Inventions of the Great War," published by the Century Company.

This book by the editor of the Scientific American carries with it the conviction that many of the inventions described will mean even more to the world in peace than they did in war. If necessity is the mother of invention, time must be the father of it, for only with time can complete development come.

It is not the purpose of the author, he explains, to boast of American genius. "The inventions we had given to the world had been developed marvellously in other lands. Furthermore, they were in the hands of a determined and unscrupulous foe, and we found before us the task of overcoming the very machines that we had created."

Mr. Bond holds the tank to be the most important invention of the war, and while granting it to be a British creation recalls the fact that it was inspired by the sight of an American tractor at an agricultural exhibit in Belgium. It had been invented, or at any rate perfected, by Benjamin Holt of Peoria, Ill. "Little did Mr. Holt think," writes Mr. Bond, "as he watched his powerful mechanical elephants at work on the vast Western wheat fields that they, or their offspring, would some day play a leading role in a war that would rack the whole world."

Col. E. D. Swinton of the British Army procured one of the tractors, and military engineers began designing an armored body to be carried along on the caterpillar belts. To keep the plan a secret different parts of the machine were made in different factories and the Germans had no inkling of what was going on until they saw the strange monsters lumbering out of the mists of No Man's Land in the early morning of Sept. 15, 1916. Afterward, when the Germans attempted to duplicate the British tank, they succeeded only in making a poor and cumbersome imitation.

"Since America invented the machine gun and also barbed wire, and since America furnished the inspiration for the tank with which to trample down wire entanglements and stamp out machine guns, naturally people expected our army to come out with something better than anything produced by our Allies," remarks Mr. Bond. "We did turn out a number of heavy machines patterned after the original British tank, with armor that could stand up against heavy fire, and we also produced a small and very speedy tank similar to the French 'baby' tank, but before we could put these into service the war ended. The tanks we did use so effectively at St. Mihiel and in the Argonne Forest were supplied by the French."

The honor of inventing and developing the machine-gun can be claimed by America, even though Hiram Maxim gave up his American citizenship to become a British subject. The Browning machine-gun filled a new need, and here again it was an American who turned the trick. John M. Browning was born in Ogden, Utah, where his father had a gun shop. When it was a Browning pistol that was used by the assassin who killed the Archduke of Austria at Sarajevo, and that it was the Browning machine-gun and rifle with which American troops swept the Germans back through the Argonne Forest.

The long-range gun that shelled Paris cannot be called a great invention, declares Mr. Bond, because it was of little military value. After that the United States Ordnance Department designed a gun with a range of 120 miles, although there was no instance of constructing such a gun.

It was with the Howitzers that destroyed the Belgian forts that the Germans provided one of the surprises of the war. The difficulty of firing grape-shot at long range has been overcome by the making of a shell that is really a gun in itself. The shell, loaded with grape-shot, is fired over the lines of the enemy, where it explodes and scatters a hail of leaden balls over a fairly wide area.

Liquid fire, it is stated, did not play a very important part in trench warfare for the reason that flame-throwing apparatus had its drawbacks. There was always danger to the man who carried it. The "fire hose," however, proved effective in clearing captured trenches of the enemy. A stream of liquid fire would be poured into a dug-out, and if the enemy didn't tumble out in a hurry he would be burned to death.

After the war started, the

author observes, it began to be realized that there were four distinct classes of work for the airplane to do—scouting, artillery, spotting, bombing, and that each called for a special type of machine. One of the productions of military aeronautics was a puncture-proof gasoline tank, made of soft rubber with a thin lining of copper. The Germans built an armored battle-plane known as the flying tank, but it did not prove very successful.

The Zeppelins were a failure because they depended for their buoyancy on a highly inflammable gas. Now American chemists have discovered helium, or "sun gas," the one element looking to make the dirigible balloon a real success.

The Liberty Motor finished at Washington on July 4, 1917, was too heavy for a light battle plane, but excellent for other planes. In the later development of flying boats, four of these motors were used to drive a giant plane of the NC type. The automatic airplane that served as a target for aerial gunners in training was another development. Sent up without a pilot, it would fly at the rate of forty to fifty miles an hour until its supply of gasoline gave out, when it would drop into the sea.

Planes were used for other purposes than fighting during the war—for one there was the flying ambulance. Mail is now carried through the air; in Europe huge bombing machines are being used for passenger service between cities, and here as well as abroad police are being trained to fly.

Talking in the sky has been made possible by the audion, an American invention. It was devised by Dr. Forest in 1906, and finally developed by engineers of the Bell Telephone Company. It is also possible to hear sounds under the water, thanks to the hydrophone. Sound detectors developed during the war may be the means in future of saving many ships from collision or running on rocks in foggy weather. The radio compass also finds its peace-time application as a direction-finder to pilot a ship into harbor, and also to tell whether another ship is coming directly towards her.

The work of camouflage is the subject of this comment:

"While in war safety lies in invisibility, in peace the reverse is true. Now the war is over, it may seem that the work of the camoufleurs can find no useful application; but it was impossible to learn how to make objects invisible without also learning how to make them conspicuously visible. As a consequence, we know now how to paint a ship so that it will show up more clearly in foggy weather, thereby reducing the danger of collision. We know, too, how to paint lightships, buoys, etc., so that they will be much more conspicuous to mariners and how to color railroad signals and road signs so that they will be more easily seen by locomotive engineers and automobile drivers."

The author of "Inventions of the Great War" reaches this conclusion: "Many inventions of our own and of our Allies were not fully developed when the war ended, and there were some which, although primarily intended for purposes of war, will be most serviceable in time of peace. For this war was not one of mere destruction. It set men to thinking as they never thought before. It intensified their inventive faculties, and as a result the world is richer in many ways."

"HORSE MARINES."
MOUNTED MARINES were seen for the first time in the streets of Salt Lake City, Utah, when members of the United States Marine Corps appeared as cavalrymen in a parade, given in honor of visiting Rotarians, who held a convention there recently.

The sea soldiers explained that while "horse marines" are a novelty in this country, many of their comrades are serving as mounted infantry at Peking, China, and that several troops of mounted marines are now busy rounding up bandits in Haiti.



By Zoe Beckley.

WANT to earn your living in the movies? Of course you do; everybody does. You have heard how "extra ladies" and "dancing gentlemen" make ten dollars a day. Without experience or pull or anything. Now, can it be done? x x x The x's indicate that we have asked Mr. Brady and Mr. Griffith, and ascertained that it can. That is, these experienced gentlemen assure us that a comfortable living may be made as an "extra," provided:

1. You are a type.
2. You are not what is termed in screen circles "a cuff-shooter" or a "vamp."

Said William A. Brady in his cool, easy at the top of the Playhouse, "Over at Fort Lee there is a whole little village of persons who earn good money as 'extras' in the studios. A few are professionals. But more than half are everyday men and women who need to earn, and have found it necessary by simply being what they are. In other words, in looks, manners and dress they represent some universally recognized 'type.'"

"Take the mother type; for instance. Almost any refined, sympathetic woman in the fifties and sixties who has the face and personality expressing motherhood and possesses a fair wardrobe can earn from \$3 to \$10 a day as an 'extra' or in some small part.

"Even more in demand is the mature man of distinguished air who knows how to wear his clothes and suggests the bank director or the man-about-town. He must have figure, of course, and at least enough hair to camouflage with. And not too many teeth missing. The director knows how to make the best of him. Dozens of men of this type who couldn't earn \$10 a month in business, knock out that much weekly in the movies.

"Girls and youths of the Russian type are being used a lot nowadays in revolutionary scenes. Scores of them from the east side earn good money, say from \$250 to \$5 a day, going the rounds of the studios, doing a scene here and a scene there."

"What pays the best of all, though," went on Mr. Brady, pressing a button to have some photographs brought, "is plain, genuine, old-fashioned refinement. Time was, in the early stages of the moving picture art, that the 'cuff-shooter' and the 'lady vampire' were much in evidence. They have passed, just as the ranting actor has passed. Movie actors now are as perfectly cast as players on the speaking stage."

"When we put on Peacock Alley, say, we reproduce it exactly as it is, the persons appearing being absolutely correct 'types.' Formerly, 'cuff-shooters' and 'lady vamps' would have cluttered up the scene."

"A 'cuff-shooter,' Mr. Brady explained, is a gentleman vamp of a sort. "A poseur, a fellow who thinks of his looks more than of his acting—and usually looks wrong at that." He is long on hair, tending to ringlets which he permits, may train, to fall "carelessly above the left eye." The eye is soulful and self-conscious.

Whenever possible, the "cuff-shooter" leans against a mantelpiece, striking attitudes as his life work. He is always acting the part, never really being it.

The old-fashioned "vamp," too, is taboo. Sinuous ladies glitter with jet, all snaky and wet-looking with clinging spangles, are now popular only in the nickel-show "films." Refinement has come into its own, even for adventures and sirens.

Mr. Brady illustrated with a photograph showing some fifty-eight characters grouped round a gaming table. Only two of them were trained players; the rest merely extras of the three-to-ten-dollar-a-day variety. But every one of them, from danger to debutante, from hero to hanger-on, was a natural, unexaggerated real life type.

"We must have realism," reiterated Mr. Brady, "not imitation. And we haven't time to teach extra people how to look and act like something they aren't. Wanted types of all

sorts can earn a comfortable living nowadays by simply selling the looks, manners and personality they were born and brought up with."

Not every pretty face, however, is a pretty face on the screen, the producers insist, recounting sad cases of lovely damsels and handsome youths who have dashed gayly up and smiled confidently into the camera's eye, only to find that their noses did not register. Or something weird developed about their cheekbones or mouth. You never get but one chance, either, according to Brady. If the camera man draws down the corners of his mouth as he gazes at you through his merciless instrument, you may prepare to take up some other profession. And if, later, when the strip has been developed, the director shakes his head and says, "No good—she don't seem," it is all over except putting on your hat and closing the door as you leave.

"It's odd," said Mr. Brady, "but somehow they never try it again. They seem to know it's no use. No one can tell what makes a screen face and what prevents it."

At the Griffith office, Assistant-to-the-Chief Long essayed at least a partial analysis:

"The best screen faces," he said, "are round, with blue eyes and rousseau features. With few exceptions, the famous film stars answer in general to this description. Mary Pickford has blue eyes. So have the little Gish girls, Lillian and Dorothy. Dark eyed actresses as a rule are best in 'hate roles' or sombre scenes. The public likes the laughing-face."

"But for 'extras,' persons who want to make a living in the movies and are willing not to be stars, almost any kind of face goes well if it truly represents some sort of person we see every day. We don't use freaks any more, or exaggerated characters."

"When Mr. Griffith was screening 'Intolerance' he hired some 3,000 extra people for 'Cyrus's Army' and other scenes at \$1.50 a day. But prices have shot up since then. Nowadays it is common enough to pay \$5 'and cakes,' a theatrical term meaning 'and luncheon.' An 'extra' may be an only son, minister. But

what with the waiting around, and the possession of the right sort of clothes and being the right 'type,' a director is generally willing to pay from three to eight or even ten dollars a day."

"The 'extra,' no matter how inexperienced, has all sorts of chances. He or she not only gets used to the camera and picks up technique but comes in touch with prominent players and directors. And, let me tell you, directors are always on the lookout for promising material. Mae Marsh is one of the stars who started out by presenting herself as an applicant for a place as 'extra.' Both Mae and her sister Margaret got \$2 for their first day's movie work. The Gish girls, neighbors of Mary Pickford, were brought in by Mary as 'extras.' And NOW look at them!"

The motto seems to be "First be sure you're a TYPE, then go ahead to the nearest movie studio."

TWO MINUTES OF OPTIMISM

By Herman J. Stich.

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Rocks and Rifles and Advertising

CORWEBBED yesterday a ago a nude savage was about to be attacked by a wild, famished beast.

Retreat was out of the question. Escape was cut off. Hand to hand combat was perilously impossible.

He might tear a thick bough from a tree and wield it as a club. But such tactics necessitated coming within hitting distance with the certainty of being dismembered and ripped to shreds before he might even get a chance to strike.

He had to act instantly. In desperation he lunged at a jagged boulder on the ground and with all his strength hurled it at the murderous animal facing him. He hurled another and another until the beast, bleeding, blinded and half-stunned from the hammer like impacts, staggered about, allowing him to get away.

But the cayman? His skin

Should a Girl's Suitor Use Engagement Bait? NO, DECLARES JUDGE FRESCHI

Affection, Not Trinkets, Is What Will "Land" Her

Holds That Presents Offered as Bait Ought to Lose the Game of Love—Of Course, It's All Very Well to Give Dolly a Purse—But Watch Out for Elsie, Who May Do a Little Baiting on Her Own Hook.

By Fay Stevenson

HOLDING that presents given to a girl before the engagement might be regarded as "bait," Judge Cluer of London dismissed a suit for the return of such gifts from a girl who broke off an engagement. "What do you think of that?" I asked Judge Freschi of the Court of Special Sessions.



"That 'bait' business is a horrible classification," he frowned, "and yet, come to think of it, that is just about what it amounts to in many cases. The Indian giving suitor is a pretty cheap suitor. Presents given as bait ought to lose the bait and the game of love as well. I am glad to see a sensible Judge in London turn such a case out of court. I think most of the Judges here would do the same thing."

"Of course when the fisherman goes after his game he offers an alluring, fascinating bait to his game, and means to entrap him, tries to throw it off. Every caught fish tries to throw from his mouth that very bait which tempted him. If he could talk he would probably say: 'Now, Mr. Fisherman, this is not fair. You have caught me under false pretenses.' But we hardly expect our young men to use the same methods of courtship as they would in fishing."

"And a man who does use bait in the form of jewelry, trinkets and knickknacks is not a very eligible suitor. If a man cannot win a girl by his own deep-rooted affections, by his personality and his character, and natural self I am afraid he is not much of a real man."

"Affection ought to be the real force of magnetic power to draw a girl to him. When a man has that kind of bait to offer he never has any trouble to land his fiancée."

"I often wonder why there is so much fuss over engagement presents anyway; at times it seemed as if a man were giving a tip as he would to a waiter or waitress for attention!"

"Of course there is a certain moral satisfaction in this giving of presents and I think most men do it unselfishly without any hope of reward. They do it because it gives them pleasure, because they want to, and not as a contemptible little bait to win a girl's affection. If a man really loves a girl and she sees a pretty Oriental ring, a chic little beaded handbag or a dainty filmy scarf he immediately thinks how that just fits Dolly, or Jessie, or Marie, and without once thinking 'she'll love me just a little tiny bit more when I give her that' he buys it for her just because she was in his mind and because that particular gift seems to belong to her."

"Now looking at it from the girl's standpoint. Of course legally and morally a gift is a gift and if a girl wants to keep what her suitor gives her there is nothing to prevent her from so doing, even though she refuses to wed. BUT I should think that a young lady of refinement would be glad to rid herself of all gifts which would recall or suggest a man she is not going to marry."

"But you know a girl can do a little bit of baiting herself," the

Judge laughed. "For instance, there is the girl who invites a young man to dinner and during the course of the meal the mother and the maiden aunt and the small brothers and sisters of the family assert that Elsie made the biscuits. Elsie made the salad, Elsie made the cake; in fact he is made to feel that Elsie would make a wonderful wife and that the opportunity of his life is sitting just opposite him, but alas! sometimes when he is married he discovers that Elsie can't even boil an egg."

I was about to defend Elsie when the Judge continued:

"Yes and often Elsie is caught by the wrong bait too. No doubt she thinks this man who sends her orchids, candies with the stamp of the best companies in the business, takes her to the best seats in the theatre and treats her as a royal queen for about eighteen months or so is a very great man. But perhaps she changes her opinion when he begins to bring her daisies, candies which advertise 'the better firms at engagement time but we get them for the rest of life,' and 'now and then' takes her to the theatre somewhere in the gallery."

"When I was sitting in the Magistrate's Court on the east side I saw a tremendous lot of this bait business going on. One case after another came up before me. Only in these cases it was the woman and not the man who wanted to get back the gifts. And the gifts were always hard-earned sums of money which the girl had foolishly given to the man. You might say this was a 'verbal bait.' The man always claimed that he wanted a hundred, two hundred dollars (whatever the poor girl had) to furnish a little apartment for them when they were married. And the girl trustingly handed it over to him. Then the man disappeared. And the girl came to me to recover her money. Unfortunately I had no power to come to her rescue. The lure of a prospective marriage had been too much for her."

"To-day we have a new age. Woman is coming into her own more and more. She is entering all fields and learning to be entirely independent. She is not as anxious for marriage as the old-fashioned girl was and therefore she is not as apt to be caught by a false bait. And as far as that is concerned even the society girl is getting so she doesn't fall for the bait of a new title, or a much-envied name. Have you noticed how many society girls have called off their engagements recently, just within twenty-four hours, too? All this means a step forward. It means that we shall have less divorcees and happier, better marriages. The percentage of marriages which are never allowed to reach the fifth year anniversary is far too great. Both man and girl would do better to reject the bait while there is time."

enable a man to strike a harder blow than the impact of his fist or the kick of his boot—and at a far greater distance than the length of his arm—so consistent advertising enables a man to persuade more powerfully than by speaking to a few neighbors—enables him to reach untapped sources of patronage at wonderful distances—rather than depend upon precarious transient trade or plying acquaintances.

Rifles are but perfected stone throwers. And advertising is the modern weapon—the rifle of big business. It is the better way and the only way to bring protection from and to bring down big game.

You must race at their pace or you're out of the running. And just as rocks and rifles